

**INTERVIEW SUMMARY**

Applicants would like to thank the Examiner for the courtesies he has shown them and their attorney in the interview held on February 12, 2008 at the U.S. Patent and Trademark Office. Applicant Dr. Sidney M. Baker and Applicants' attorney Aaron Haleva discussed the substantive differences between the prior art and the claimed invention with Examiner Vanel Frenel, including, *inter alia*, that the data elicited from a user is stored in the memory in a multidimensional data structure having at least three dimensions, whose dimensions reflect said taxonomy, and where said at least three dimensions comprise a systemic field, a functional field and a locational field.

Applicants' attorney and the Examiner further discussed proposed amendments to the independent claims that would capture the comprehensive health description according to the present invention.

**REMARKS**

This Amendment and Response to Final Office Action is submitted with a Request for Continued Examination. Claims 1-5 and 9-18 were pending in the application. Claims 1, 7, 13 and 15 have been amended. Claims 1, 7, 13 and 15 are the independent claims. The following remarks, along with the present claim amendments, are believed to be fully responsive to the Final Office Action mailed on November 20, 2008.

Claims 1-5 and 9-18 stand rejected under 35 U.S.C. § 103 as unpatentable over Pattichis, *Neural Network Models in EMG Diagnosis* (May 5, 1995) and U.S. Patent No. 6,780,589 to Gulati ("Gulati") in view of U.S. Published Application No. 2002/0065682 to Goldenberg ("Goldenberg").

Applicants respectfully submit that claims 1, 7, 13 and 15, as amended, as well as the claims dependent upon them, are patentable over the cited prior art, as discussed in the personal interview of February 12, 2008.

In the Final Office Action the Examiner admits that Pattichis and Gulati do not teach all of the features of the claimed invention. Final Office Action at 2-3. Thus, the Examiner relies on Goldenberg as describing a system that prompts a user to provide data sufficient to comprise a substantially complete description of his health, where the data is conceptually organized according to a defined substantially comprehensive medico-health taxonomy.

As explained in the personal interview, Applicants respectfully traverse.

Goldenberg is a web-based medical information and medical referral system, entitled a “virtual doctor cybernet” system. Effectively it lets a user have a medical consult over the Internet. Users present targeted queries and the “virtual doctor cybernet” returns information relevant to such queries. If the Goldenberg system cannot provide a user an answer to a user’s specific query – which must be phrased using standard medical categories and must be answered, if at all, using such standard medical categories – it finds him or her a referral to a doctor or specialist.

Goldenberg is thus restricted to a specific medical problem or system of concern to a user. The user has “something that ails him”, and Goldenberg gives such user a chance to talk to a “virtual doctor” about that issue. Goldenberg does not elicit from a user a substantially comprehensive expression of the user’s health, and then store or process all of that data. It does not perform some “comprehensive virtual interview” with a user. Thus, it does not guide a user through a comprehensive set of questions, based on a defined taxonomy, in order to elicit from a user, in the user’s own words, a comprehensive description of such user’s health.

For example, if the user has a bladder problem, or has had bladder surgery, as described in the examples provided in Goldenberg at ¶¶ 0066-0069, the Goldenberg virtual doctor can respond with information, literature, consultation and monitoring – depending on the level of service the user purchases - - all specific to the user's bladder issue. At no time does Goldenberg's virtual doctor run a user through a litany of queries based on a defined taxonomy so as to elicit a comprehensive description of his or her health and then store all of this data in a multidimensional data structure. Goldenberg's virtual doctor does not ask about the bladder patient's prior history of emotional well being, or whether he ever broke his tibia or collarbone, or whether he has eczema on his scalp. As in standard medical practice, Goldenberg's system is agnostic as to a user's comprehensive health description.

Finally, Goldenberg does not teach or suggest processing and organizing the user provided data so as to store it in memory in a multidimensional data structure having at least three dimensions whose dimensions reflect said taxonomy, said at least three dimensions comprising a systemic field, a functional field and a locational field, as in the claimed invention.

Goldenberg offers a user various service levels. At a first service level, Goldenberg is a literature search service. At higher levels of service, it generates referrals to doctors and specialists. At no level does it teach or suggest the claimed invention.

Goldenberg was cited at ¶¶ 0013-0016 as teaching a user being prompted to enter data that collectively comprise a substantially complete description of the user's health. Final Office Action at 3. This is simply not disclosed there. Goldenberg at ¶ 0016 states:

Briefly, according to one aspect of the present invention, there is provided a method of providing practical medical, veterinary, or other health care information on disease or health subjects of interest to a user. The method includes determining a desired level of service access for the user. The method further includes accepting an inquiry from the user and composing a search request based on the user inquiry. The method further includes searching a database, using the search request, in order to identify information

requested in the user inquiry. The method further includes providing the search results to the user. The method further includes accepting a follow-up inquiry from the user which entails providing a higher level of service access. The method further includes allowing the user to request a consultation with a health care professional and, if desired by the user, providing the user with a list of possible health care professionals. (emphasis added)

Where is there any mention of a substantially complete description of the user's health or prompting of the user to provide data sufficient to comprise a substantially complete description of his health?

The Final Office Action next alleges that Goldenberg, at ¶¶ 0005 and 0011, teaches the data being conceptually organized according to a defined substantially comprehensive medico-health taxonomy. Final Office Action at 3, first paragraph. Applicants again respectfully traverse.

Here are the cited sections of Goldenberg:

[0005] However, many individuals need more current information, and they often need it quickly. As an example, a patient with superficial bladder cancer that has relapsed from a standard therapy needs to secure the most up-to-date information after being told that the next step is surgery, e.g., the patient, as is common seeks out a second or third opinion. This is costly and time-consuming, especially when this selection process is not necessarily easy for an emotionally distressed patient. Patients also seek to secure information through books, lay articles, or other sources, including information provided through a multiplicity of Internet web sites concerned with health, cancer, or many related subjects. Often web sites dedicated to the specific malady do not exist. Even if web sites do exist which are dedicated to the malady, e.g., bladder cancer, the information is often general and would not necessarily be responsive to this patient's immediate needs. A call to a specialized agency, such as the American Cancer Society or the National Cancer Institute, would also result in securing both general cancer and specific bladder cancer information, but this would also not be tailored to the immediate questions and needs of this patient. Even if the patient were knowledgeable enough to read and understand the medical literature and retrieve this literature through one of the many literature search engines, the different views and often contradictory results can be uninterpretable without some guidance and assistance with regard to differentiating available, accessible, and more investigative interventions, and what their outcomes are.

[0011] As discussed further herein, the first level of service is primarily informational, allowing a user to request information at the specific level of sophistication appropriate to the user's ability to use the information. At a second level of service the user can

comment on the adequacy of the information and the system can determine if referral to a professional is necessary. At a third level of service a client-professional relationship is established and a professional advises the patient concerning the information needed and other actions which should be taken. At this level, the system can also identify several professionals who should form a team to advise the patient. At a fourth level of service, the system physically interacts with the patient, using monitoring devices or treatment devices. The system communicates messages to and from the devices to monitor patient parameters and to administer management advice, including monitoring or treatment, such as with drugs or other chemicals.

At no place do these sections of *Goldenberg* address data being conceptually organized according to a defined substantially comprehensive medico-health taxonomy.

Finally, *Goldenberg* at ¶ 0046-0047 was cited as teaching that the data provided by a user is stored in memory in a multidimensional data structure whose dimensions reflect the defined taxonomy. Final Office Action at 3, first paragraph. Applicants again respectfully traverse.

Here are *Goldenberg*'s ¶¶ 0046-0047:

[0046] FIGS. 4 through 7 illustrate the activities which take place at the various service access levels. FIG. 4 illustrates activities which take place at the first level of service (level 1) which is primarily a literature access service. A feature of the system according to the invention is that the literature access can be tailored to the sophistication level of the user. For example, researchers, medical students, doctors, and other professionals or semi-professionals may require more sophisticated literature than those without such specialized skills. At step 401, an inquiry is read, as described with respect to steps 301 and/or 307, for example. At step 402, the system according to the invention allows the processor to transmit an inquiry to the user asking for the desired level of sophistication. The system may transmit this information in any suitable form, for example, by requesting information about the user's level of education or by using a sliding scale reflecting the sophistication of the information to be transmitted. The system can also employ a sliding scale, e.g., 1-10 with 1 representing very basic information, 10 representing very sophisticated information with intermediate levels in between. If at step 402 the system is programmed to transmit such an inquiry, then the response is received at step 403.

[0047] Alternatively, at step 402 the system could be programmed not to transmit a sophistication level inquiry but instead, at step 404, to determine the sophistication level of the information to be provided at level 1 according to a subscription level search. If so, at step 405 the user ID and password are compared to a database to determine the appropriate level of sophistication to respond to the inquiry. Alternatively, at step 406 the system could determine the level of sophistication of the information it provides based on

a contractual arrangement. If not, the system could use the context based techniques previously discussed. In any case, once the level of sophistication for the literature search is determined, at step 408 the processor determines search criteria, for example using known techniques employed by various search engines. Thus, the processor can have any number of search engines embedded therein. At step 409 the processor accesses the relevant databases and at step 410 establishes a list of documents responsive to the request. At step 410 the processor can then transmit that list to the user. The list can be transmitted to the user in the form of titles, titles and abstracts, the first several lines of the documents, or any other format which is consistent with the user's ability to understand generally what information the document contains.

This describes a literature search service. There is no mention at all of data provided by a user being stored in memory in a multidimensional data structure whose dimensions reflect the defined taxonomy.

Thus, Goldenberg clearly does not teach storing user provided data in multidimensional data structure having at least three dimensions whose dimensions reflect said taxonomy, said at least three dimensions comprising a systemic field, a functional field and a locational field, as claimed.

In fact, none of the cited references seek a user to provide data that collectively comprise a substantially complete description of the user's health. None describe a unique defined taxonomy to organize this data, and none describe using a defined distance metric to locate other users' multidimensional data structures that are closest to that of a first user.

In the Response to Arguments section of the Final Office Action the Examiner states that he relied on the clear teaching of Goldenberg, at ¶¶ 0010-0011, 0016 and 0048 for the claimed feature of prompting a user to provide data sufficient to comprise a substantially complete description of his health, wherein the data is stored in the memory in a multidimensional data structure whose dimensions reflect said taxonomy.

Applicants have already addressed Goldenberg at ¶¶ 0010, 0011 and 0016. As to Goldenberg at ¶ 0048, Applicants again respectfully traverse.

Goldenberg at ¶ 0046-0047 have been reproduced above. They describe a literature search on a specific user subject of interest. Goldenberg at ¶ 0048 continues the description of the literature search, and there describes what documentation the user selects. Again, this is only in response to the specific query, such as that of the exemplary “patient Charles” query regarding bladder cancer (see Examples 1-2 at ¶¶ 0065-0066). This is clearly not data sufficient to comprise a comprehensive description of the user’s health, organized according to a defined taxonomy, and clearly not the claimed multidimensional data structure having at least three dimensions whose dimensions reflect said taxonomy, said at least three dimensions comprising a systemic field, a functional field and a locational field.

Thus, Applicants respectfully submit that the Goldenberg reference in particular, and the cited art in general, do not teach the claimed invention.

Unlike prior art systems, the system and methods of claims 1, 7, 13 and 15 elicit from a user and/or store, as the case may be, a ***comprehensive snapshot*** of such user’s health by prompting a user using the terms of a novel comprehensive medico-health taxonomy. Such a taxonomy is designed to be understandable by non-medical professionals and to also be ultimately transformable into a multidimensional data structure capable of being stored in a computer for the purposes of searching and analysis.

Moreover, such a taxonomy is optimized for storage and processing in a large database of similar comprehensive health descriptions of humans, inasmuch as the elements of the taxonomy are substantially orthogonal to one another.

As described in the specification, such a taxonomy can be used as the common semantic reference frame in which a user can be queried as to her health status and in whose terms she can answer. As described in the Specification, such a “taxonomy is a language or lexicon that is detailed enough so as to allow the system to store a comprehensive description of the user which facilitates finding a medically meaningful similar users, and at the same time comprises language that is natural enough to allow even the uneducated and unsophisticated user to meaningfully articulate his or her own medical state of being.” *Specification* at ¶ 59. In one exemplary embodiment, the task of inputting responses to questions can be facilitated by prompting a user to articulate their health profile, and then enter any medical/health events via an age/gender appropriate graphic interface. *Specification* at ¶ 133, Fig. 34; ¶ 140, Figs. 18-22. An exemplary taxonomy is provided in Exhibit A-1. Thus, as noted during the interview, for ease of computing at the system level, a processed set of a user’s responses organized according to the taxonomy can be mapped to a substantially orthogonal basis set using, for example, a set of “system-function-where” triples as provided in Exhibit A-3 of the Specification. These “system-function-where” triples are the claimed **said at least three dimensions comprising a systemic field, a functional field and a locational field.**

Thus, none of these references teaches or suggests prompting a user to provide data sufficient to comprise a substantially complete description of his health, wherein the data is conceptually organized according to a defined substantially comprehensive medico-health taxonomy, and wherein such data is stored in the memory in a multidimensional data structure whose dimensions reflect said taxonomy.

As admitted in the Final Office Action, neither Pattichis nor Gulati teach the claimed invention either.



*Pattichis* teaches the use of electromyography (EMG) and pattern recognition algorithms to diagnose neuromuscular disorders. *Pattichis* at 486. EMG is useful for diagnosing neuromuscular disorders because it measures the electrical activity in muscles. Electrical signals are acquired with needles inserted into the muscle itself. *Pattichis* at 486. No part of *Pattichis* teaches or suggests querying a user in terms of a substantially comprehensive taxonomy and storing the user provided data in a multidimensional data structure as claimed. *Pattichis* is concerned only with measuring simple muscle activity via electrodes – not by drawing on the wealth of information that the patient has in his mind about his condition and his general health state in a systematized manner. Furthermore, *Pattichis* is unconcerned with any medico-health information outside the realm of neuromuscular disorders. This is quite a significant departure from a comprehensive description of the totality of a human's health, encompassing both body and soul. *Pattichis*, therefore, does not teach or suggest the systems or methods of the independent claims.

*Gulati* is directed to a system that exposes genetic mutations by measuring the hybridization of oligonucleotides in a biological sample to produce dot spectrograms and statistically processing the dot spectrograms. *Gulati* at 4:35-54. Furthermore, the *Gulati* system is limited to discovering genetic mutations. Measuring the hybridization of oligonucleotides is a specialized biochemical test that acquires medical data in the conventional manner. The method of *Gulati* is vastly different than presenting a series of queries to a user based on a specific comprehensive medical taxonomy, processing the user's responses and then then storing the data in memory in a multidimensional data structure whose dimensions reflect said taxonomy. *Gulati* does not seek any articulation from a user as to his own medico-health state of being. It has no user provided data and elicits none.

Thus, the cited references, whether taken alone or in any combination, do not teach or suggest the systems and methods of claims 1, 7, 13 and 15, as amended, and thus these claims are urged as patentable over the cited prior art. For similar reasons, dependent claims 3-6, 9-12 and 14-15 are also urged as patentable over the cited prior art. Therefore, Applicants respectfully submit that the pending claims are now in condition for allowance. Favorable reconsideration is requested.

**CONCLUSION**

In view of the remarks herein, Applicant believe that each ground for rejection made in the instant application has been successfully overcome or obviated, and that all pending claims are now allowable. Withdrawal of the Examiner's rejections, and allowance of the current application are respectfully requested.

No additional fee is believed necessary for entry of this Amendment. However, the Commissioner is hereby authorized to charge any additional fee to Deposit Account No. 50-0540.

Dated: **May 20, 2008**

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Aaron S. Haleva', is written over a horizontal line.

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